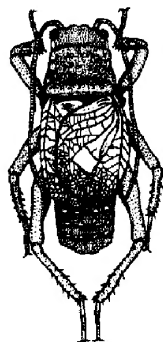


Far Eastern Entomologist



Дальневосточный энтомолог

Journal published by
Far East Branch of the
Russian Entomological Society
and Laboratory of Entomology
Institute of Biology and Pedology,
Vladivostok

Number 3: 1-20

November 1994

Review of Orthoptera of Eastern Palearctica: Genus *Tettigonia* Linnaeus (Tettigoniidae, Tettigoniinae)

S. Storozhenko

Institute of Biology and Pedology, Vladivostok-22, 690022, Russia

Review of the genus *Tettigonia* of the Eastern Palearctica is made. Key to species and subspecies are given. New synonymy is established: *T. orientalis orientalis* Uvarov, 1923 = *T. orientalis yama* Furukawa, 1938, syn. n. New subspecies, *T. dolichoptera maritima* ssp. n., is described from Russian Far East.

KEY WORDS: Orthoptera, Tettigoniidae, taxonomy.

С.Ю.Стороженко. Обзор прямокрылых (Orthoptera) Восточной Палеарктики: род *Tettigonia* Linnaeus (Tettigoniidae, Tettigoniinae) // Дальневосточный энтомолог. 1994. N 3. С. 1-20.

Дан обзор кузнечиков рода *Tettigonia* Восточной Палеарктики. Установлена новая синонимия: *T. orientalis orientalis* Uvarov, 1923 = *T. orientalis yama* Furukawa, 1938, syn. n. С юга Дальнего Востока описан *T. dolichoptera maritima* ssp. n.

INTRODUCTION

The collections of Zoological Institute (St. Petersburg) and Institute of Biology and Pedology (Vladivostok) of Russian Academy of Sciences, Zoological Museum of Moscow University, Osaka Museum of Natural History, National Science Museum (Tokyo) and Academy of Natural Sciences of Philadelphia are studied for the purpose of clarify systematic status of the East Palearctic species of genus *Tettigonia*; a revised generic and species diagnosis and a key to species and subspecies are given.

Tribe Tettigoniini Stoll, 1878

This tribe includes three Palearctic genera *Tettigonia* L., 1758, *Amphiestris* Fieber, 1853 and *Kansua* Uvarov, 1933 and characterized by follow: Head relatively short; vertex vertical. Fastigium of vertex distinct, narrow, equal or 1.1-1.6 times narrower than first antennal segment. Eyes small. Pronotum medium-sized, its posterior margin broadly rounded, smooth; disc of pronotum narrowed anteriorly, flat in prozona and very slightly impressed in metazona; median carina obsolete in prozona, faintly indicated in metazona; lateral carinae indicate in metazona. Prosternum with two very long processes. Mesosternal lobes long and narrow. Metasternal lobes longer than broad. Legs slender. Fore femora with 2-6 teeth on inner ventral margin, outer ventral margin without or with 1-5 teeth. Fore tibia dorsally with 3 spines in outer margin, inner margin unarmed; ventrally with 6 large spines on both margins. Tibial auditory structure closed, slit-like. Middle femora with 2-12 teeth on outer ventral margin, inner ventral margin without or with 1-8 teeth. Hind femora slender, ventral margin with 4-19 outer and 6-13 inner teeth. Hind tibia bearing two pairs spurs on posterior margin of ventral surface. Plantula of hind tarsus small, length of plantula 2.8-3.7 times less than length of basitarsus. Tegmen and hind wing short or well developed. Ovipositor long, straight. Male genitalia with one pair of well sclerotized titillators, basal portion of titillator large. Phallic membrane with 2 dorsal and 3 ventral membranous lophi. Genus *Tettigonia* well distinguished from all other genera of Tettigoniini by well developed tegmen and wings.

Genus *Tettigonia* Linnaeus, 1758

Tettigonia (pro subgenus *Gryllus*) Linnaeus, 1758 : 429.

Tettigonia: Shrank, 1781, Enum. Ins. Austr. : 244; Leach, 1815 : 120; Karny, 1908, Zool. Ann., 2 : 104; Uvarov, 1923 : 493; Miram, 1933, Orth. Jakut. : 11; Chang, 1935 : 60; Tarbinsky, 1940 : 13, 74; 1948 : 90; Furukawa, 1948, Shin-Konchu, 1 : 265; Bey-Bienko, 1964 : 225; Harz, 1969 : 193; Sergeev, 1986 : 178; Storozhenko, 1986 : 248, 252.

Phasgonura Stephens, 1835, Ill. Brit. Ent., Mand., 4 : 15.

Phasgonura: Westwood, 1840, Mod. Class. Ins., Syn. Gen., 2 : 45; Kirby, 1906 : 216; Caudell, 1912, Gen. Ins., 138 : 15; Roberts, 1941 : 13.

Eumenymus Pictet, 1888, Mem. Soc. Genove, 30(6) : 58.

Locusta (nec Linnaeus): Brunner-Wattenwyl, 1882, Prodr. Europ. Orth. : 306; Jacobson, 1905 : 326, 340, 392; Matsumura, Shiraki, 1908 : 69.

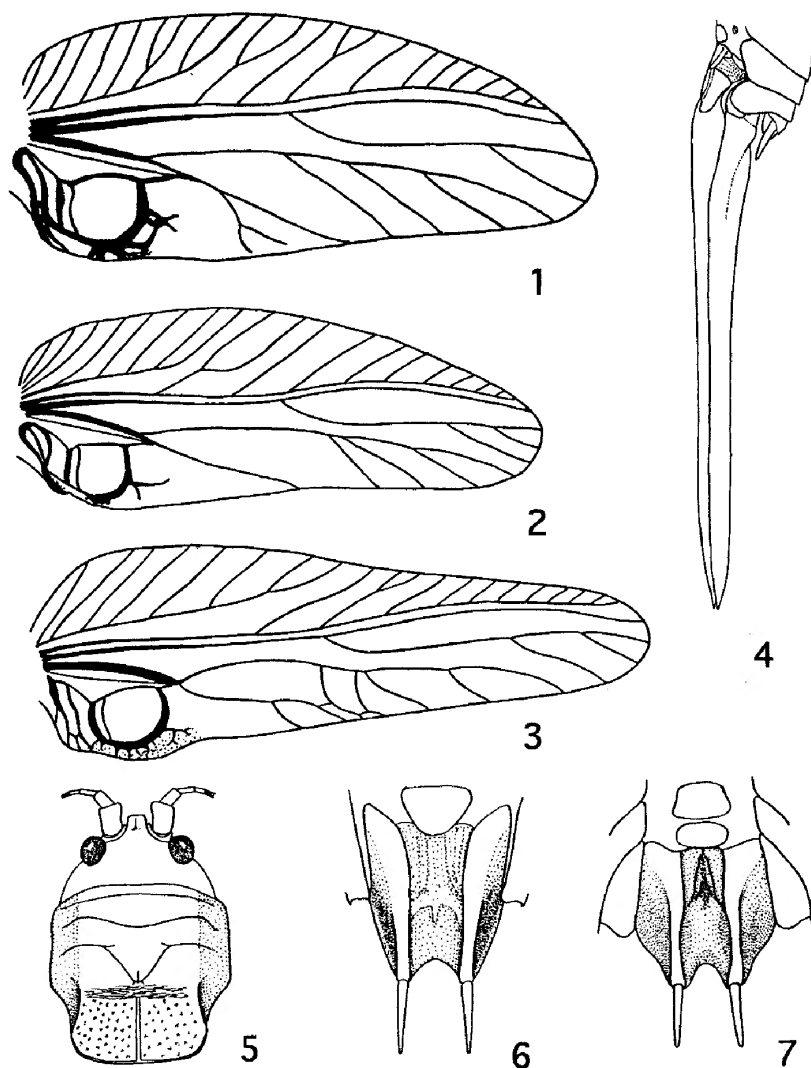
Type species: *Gryllus* (*Tettigonia*) *viridissimus* Linnaeus, 1758, by subsequent designation (Lacch, 1815 : 120).

DIAGNOSIS. Body large, green or light brown. Fastigium of vertex 1.05-1.6 times narrower than first antennal segment. Tegmen well developed, with rounded apex, 3.1-7.0 times longer than pronotum. Male cercus long, with large inner tooth placed shortly before the middle or near the base. Ovipositor straight, 2.7-4.3 times longer than pronotum. Subgenital plate of female with deep emargination on hind margin and with distinct lateral carinae. Tittilator with long, almost straight apical portion bearing 2 teeth.

SPECIES INCLUDED. Besides of the East Palearctic species and subspecies mentioned below, the following representatives of genus *Tettigonia* are known: *T. hispanica hispanica* (I.Bolivar, 1893) and *T. hispanica silana* Capra, 1936 from South Europe, *T. longelata* Chopard, 1936, *T. macroxipha* (I.Bolivar, 1914) and *T. lozanoi* (I.Bolivar, 1914) from Morocco, *T. turcica* Ramme, 1951 and *T. acutipennis* Ebner, 1946 from Minor Asia, *T. caudata armeniaca* Tarbinsky, 1940 from Caucasus (Armenia).

Key to Eastern Palearctic species and subspecies

- 1(16) Hind femora with black spines ventrally, which not arise from black spots (fig. 22). Speculum subsquare (figs. 24, 25).
- 2(9) Tegmina long, 4.5-7.0 times longer than pronotum. Length of RS 1.4-2.2 times more than length of R (from base of R to origin of RS) (figs. 8, 9).
- 3(6) Tegmina 5.7-7.0 times longer than pronotum, almost parallelside (fig. 8). Lateral carinae of subgenital plate of female not interrupted (figs. 26, 29).
- 4(5) Length of speculum 2.5-2.6 mm (fig. 24). Ovipositor 3.1-3.4 times longer than pronotum *T. viridissima*
- 5(4) Length of speculum 3.5 mm (fig. 25). Ovipositor 2.75-2.9 times longer than pronotum *T. chinensis*
- 6(3) Tegmina 4.5-5.3 times longer than pronotum, at basal 1/3 part more wider than in apical 1/3 (fig. 9). Subgenital plate of female with interrupted lateral carinae near the basal third (fig. 27).
- 7(8) Tegmina 5.2-5.3 times longer than pronotum. Inner tooth of male cerci with acute apex. Ovipositor 4.1 times longer than pronotum.....*T. dolichoptera dolichoptera*
- 7(8) Tegmina 4.5-4.6 times longer than pronotum. Inner tooth of male cerci with dentes. Ovipositor 3.2-3.5 times longer than pronotum.....*T. dolichoptera maritima* ssp. n.
- 9(2) Tegmina relatively short, 3.1-4.3 times longer than pronotum. Length of RS 1.0-1.3 times more than length of R (from base to origin of RS) (figs. 1-3).
- 10(11) Fastigium of vertex 1.05-1.1 times narrower than 1st joint of antennae. CuP of left tegmen of male with 54-58 stridulatory teeth. *T. cantans*
- 11(10) Fastigium of vertex 1.4-1.6 times narrower than 1st joint of antennae. CuP of left tegmen of male with 79-106 stridulatory teeth.
- 12(15) Tegmina at basal 1/3 part wider than in apical 1/3 (fig. 3). CuP of left tegmen of male with 98-106 stridulatory teeth. Lateral carinae of subgenital plate of female complete (fig. 30).
- 13(14) Lobes of supra-anal plate of male with acute apex (fig. 15). Apical portion of titillators long and narrow *T. orientalis orientalis*
- 14(13) Lobes of supra-anal plate of male with rounded apex (fig. 14). Apical portion of titillators short and broad *T. orientalis ibuki*



Figs. 1-7. *Tettigonia*. - 1) *T. cantans*, tegmen of male; 2) do. *T. ussuriana*; 3) do. *T. orientalis orientalis*; 4) *T. ussuriana*, apex of abdomen of female in lateral view; 5) *T. dolichoptera maritima* ssp. n., head and pronotum in dorsal view; 6) *T. dolichoptera maritima* ssp. n., subgenital plate of male in ventral view; 7) do. *T. ussuriana*.

- 15(12) Tegmina with almost equal width in basal and apical parts (fig. 2).
CuP of left tegmen with 79-84 stridulatory teeth. Lateral carinae of
subgenital plate of female interrupted (fig. 28) *T. ussuriiana*
- 16(1) Hind femora with black spines ventrally, each of them arising from a
black or dark spot (fig. 21). Speculum more or less triangulate (fig.
23).
- 17(18) Hind femora with black spots near the base of spines
..... *T. caudata caudata*
- 18(17) Hind femora with dark spots near the base of spines
..... *T. caudata mistshenkoi*

***Tettigonia viridissima* (Linnaeus, 1758)**

Figs. 8, 13, 19, 24, 26

Gryllus (Tettigonia) viridissimus Linnaeus, 1758 : 430, No 37 (Types
- males and females, Europe).

Gryllus (Tettigonia) viridissima: Stoll, 1813, Spect. Saut. : 42, Pl.
23, fig. b, f.

Conocephalus viridissimus: Thunberg, 1815, Mem. Acad. St.-
Petersb. : 218.

Locusta viridissima: Fabricius, 1775, Syst. Ent. : 286; Fischer-
Waldheim, 1846 : 148, Pl. 4, fig. 1; Fieber, 1853, Lotus, 3 : 171;
Fischer, 1853, Orth. Europ. : 251, Pl. 14, figs. 5a-f; Fieber, 1854, Syn.
Europ. Orth. : 47; Brunner-Wattenwyl, 1882, Prodr. Europ. Orth. : 307;
Jacobson, 1905 : 340, 392, Pl. 8; Uvarov, 1910 : 381.

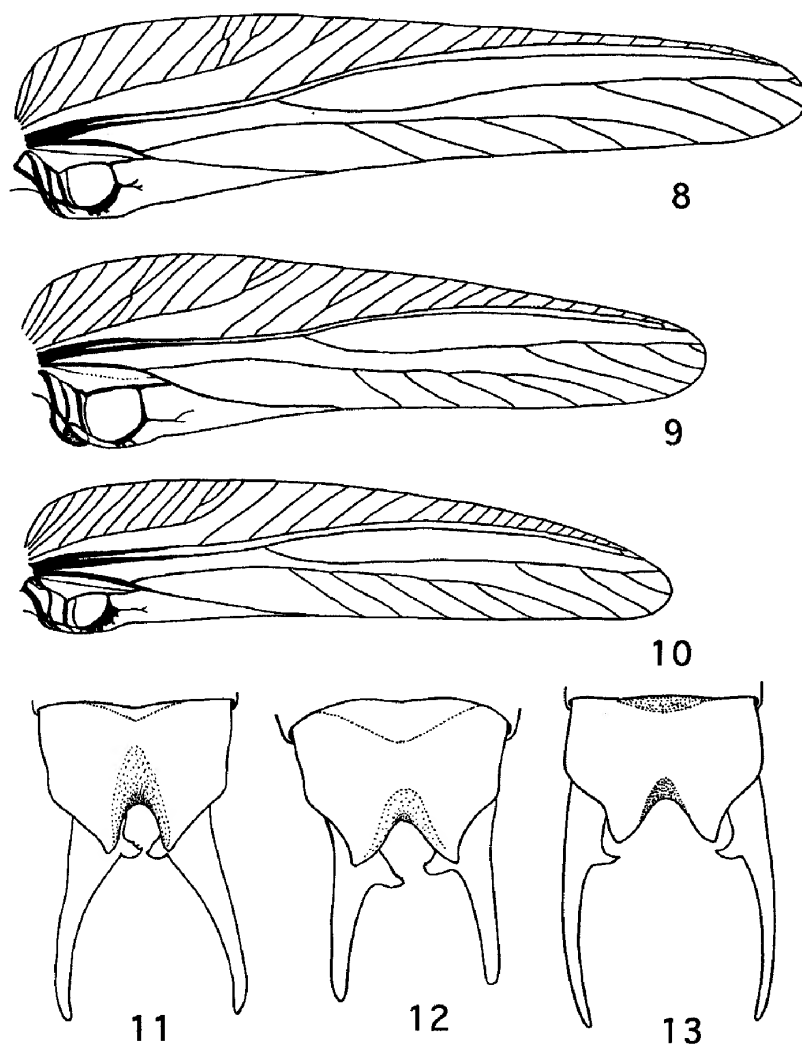
Locusta viridissima var. *meridionalis* Shugurov, 1912, Russk.
Entomol. Obozr., 12(2) : 222.

Phasgonura viridissima: Stephens, Ill. Brit. Ent., Mand., 4 : Pl. 16,
No 1; Kirby, 1906 : 217.

Tettigonia viridissima: Tarbinsky, 1925 : 178; Bey-Bienko, 1925 :
42; Uvarov, 1933, Ark. Zool., 26(1) : 4; Chang, 1935 : 62 (part.);
Furukawa, 1938 : 449; Tarbinsky, 1940 : 13; 77; Tarbinsky, 1948 : 91;
Bey-Bienko, 1964 : 225; Harz, 1969 : 196, figs. 9, 18, 21, 613, 618-620;
Mistshenko, 1972 : 27 (part.); Pravdin, 1978 : 194; Marshall, 1983 :
394; Sergeev, 1986 : 178 (part.); Storozhenko, 1986 : 252 (part.).

Locusta viridis cantatrix De Geer, 1773, Mem. Ins., 3 : 428.

Tettigonia paolii Capra, 1936, Boll. Soc. ent. ital., 68 : 162, Figs.
1A, 2; Ebner, 1946 : 24.



Figs. 8-13. *Tettigonia*. - 8) *T. viridissima*, tegmen of male; 9) do. *T. dolichoptera maritima* ssp. n.; 10) do. *T. caudata caudata*; 11) *T. dolichoptera maritima* ssp. n., apex of abdomen of male in dorsal view; 12) do. *T. ussuriana*; 13) do. *T. viridissima*.

Phasgonura paolii paolii: Jannone, 1937, Boll. Zool. Napoli, 8 : 68.
Phasgonura paolii intermedia Jannone, 1937, Boll. Zool. Napoli, 8 : 70, fig. 6, 1.
Phasgonura trinacriae Jannone, 1937, Boll. Zool. Napoli, 8 : 72, fig. 1B, 3.
Tettigonia paolii intermedia: Ebner, 1946 : 24.
Tettigonia trinacriae: Ebner, 1946 : 24.
Tettigonia viridissima var. *flava* Nedelkov, 1907, Period. Spis. Bolgarsk. Druzh., 68(5-6) : 430.

MATERIAL. More than 150 specimens from all area are studied.

REDESCRIPTION. Fastigium of vertex 1.15-1.4 times narrower than first antennal segment. Tegmen surpassing far beyond of hind femur, 5.7-6.2 times longer than pronotum, almost parallelsided; length of RS 1.7-1.9 times more than length of R (from base of R to origin of RS); CuP of left tegmen of male with 57-66 stridulatory teeth; speculum subsquare; length of speculum 2.5-2.6 mm. Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with acute apex. Subgenital plate of male with broadly rounded emargination; lateral carinae of subgenital plate of female complete. Ovipositor 3.1-3.4 times longer than pronotum. Apical portion of titillators smooth. Body green, from above with brown stripe. Hind femora uniform green including the area near the base of ventral black spines.

MEASUREMENTS. Length of body male 28.2-33.5, female 27.5-39.0; pronotum male 7.0-8.5, female 7.2-9.0; tegmen male 40.0-47.5, female 44.0-53.5, hind femur male 22.3-28.0, female 25.3-29.5; ovipositor 23.2-32.5 mm.

NOTES. Two specimens (male and female) without data in Linnaean collection (London) mentioned by Marshall (1983 : 394) probably are syntypes.

DISTRIBUTION. North Africa, Europe, Minor Asia, Caucasus, Afghanistan, North India, Central Asia, Kazakhstan, North-West China (Tian-Shan), West Siberia (from Ural to Altai Mts.). All reference from the more eastern parts of North Asia belongs to another species: *T. orientalis*, *T. chinensis* and *T. dolichoptera*.

***Tettigonia chinensis* C.Willemsse, 1933**

Figs. 16, 25, 29

Tettigonia chinensis C.Willemse, 1933 : 17, fig. 3. (Holotype - male, China: Chungking, in Dtsch. Ent. Inst., Germany); Chang, 1935 : 61; Furukawa, 1938 : 449; Tinkham, 1943 : 60; Ebner, 1946 : 24; F.Willemse, 1966, Natuurh. Gen. Limburg, 16 : 33.

MATERIAL. Five specimens are studied.

REDESCRIPTION. Fastigium of vertex 1.3-1.5 times narrower than first antennal segment. Tegmen surpassing far beyond of hind femur, 6.0-6.2 times longer than pronotum, almost parallelsided; length of RS 2.0 times more than length of R (from base of R to origin of RS); CuP of left tegmen of male with 81-83 stridulatory teeth; speculum subsquare; length of speculum 3.5 mm. Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with strongly acute apex. Subgenital plate of male with broadly rounded emargination; lateral carinae of subgenital plate of female complete. Ovipositor 2.75-2.9 times longer than pronotum. Apical portion of titillators rugate. Body green, from above with indistinct light brown stripe. Hind femora uniform green including the area near the base of ventral black spines.

MEASUREMENTS. Length of body male 31.8-33.0, female 30.5-32.0; pronotum male 7.8-8.0, female 7.5-8.5; tegmen male 47.3-49.0, female 52.5-53.0, hind femur male 27.0-28.0, female 29.0-30.5; ovipositor 22.0-23.5 mm.

DISTRIBUTION. South China: Guangdong, Sichuan, Kiangsi.

***Tittigonia dolichoptera dolichoptera* Mori, 1933**

Tittigonia dolichoptera Mori, 1933 : 52, fig. a. (Syntypes - males and females, South Korea; lost); Ebner, 1946 : 24; Rentz, Miller, 1971 : 266.

Tettigonia viridissima (nec. Linnaeus): Uvarov, 1923 : 495; Furukawa, 1930 : 104, 105 (part); Mori, 1933 : 51.

MATERIAL. Two males and one female are studied.

REDESCRIPTION. Fastigium of vertex 1.3 times narrower than first antennal segment. Tegmen surpassing far beyond of hind femur, 5.2-5.3 times longer than pronotum, at basal 1/3 part more wider than in apical 1/3; length of RS 1.6-1.7 times more than length of R (from base of R to origin of RS). Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with acute apex. Lateral carinae of subgenital plate of female interrupted. Ovipositor 4.1 times longer than pronotum. Body

green, from above sometimes with indistinct brown stripe. Hind femora uniform green including the area near the base of ventral black spines.

MEASUREMENTS. Length of body male 34.0, female 28.0; pronotum male 9.0, female 8.5; tegmen male 47.0, female 45.0, hind femur male 31.0, female 29.0; ovipositor 35.0 mm.

DISTRIBUTION. Known only from South Korea.

***Tittigonia dolichoptera maritima* Storozhenko, ssp. n.**

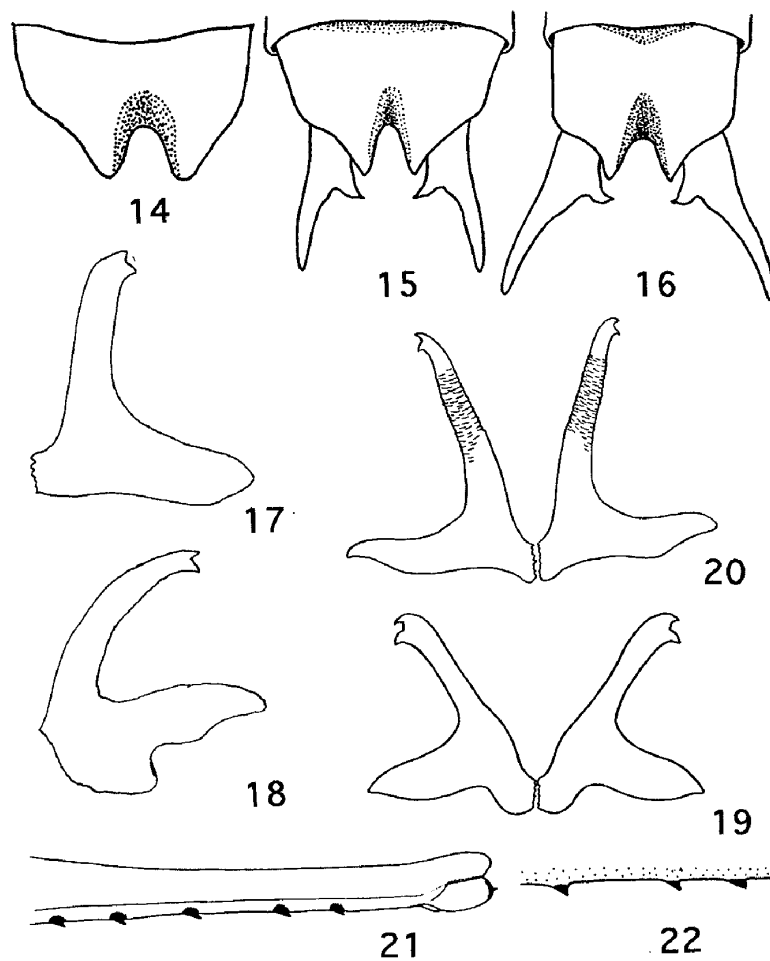
Figs. 5, 6, 9, 11, 20, 22, 27

Tettigonia viridissima (nec. Linnaeus): Storozhenko, 1980 : 13; 1986 : 252 (part.); 1992 : 46.

MATERIAL. Holotype - male, Russia: Amurskaya oblast, 9 km west of Kundur, 16.VIII 1987 (S.Storozhenko). Paratypes - Russia: the same label as holotype, 2 males, 1 female; Khabarovskii krai, Pashko-vo, 19.VIII 1982, 2 males, 1 females (S.Storozhenko); Primorskii krai: Vladivostok, 12.VIII 1975, 5.IX 1986, 28.IX 1986, 5 males (S.Storozhenko); Kedrovaia Pad reservation, 2.VIII 1976, 20.VIII 1986, 1 male, 1 female (S.Storozhenko); Khasan, 11.VIII 1976, 8-12.IX. 1980, 5 males, 3 females (S.Storozhenko); Dmitrievka, 28.VII 1981, 1 male (V.Arefin). Holotype in Zoological Institute, St.Petersburg.

DESCRIPTION. Fastigium of vertex 1.1-1.35 times narrower than first antennal segment. Tegmen surpassing far beyond of hind femur, 4.5-4.9 times longer than pronotum, at basal 1/3 part more wider than in apical 1/3; length of RS 1.4-1.9 times more than length of R (from base of R to origin of RS); CuP of left tegmen of male with 83-96 stridulatory teeth; speculum subsquare; length of speculum 2.8-3.3 mm. Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with dentated apex. Subgenital plate of male with broadly rounded emargination; lateral carinae of subgenital plate of female interrupted. Ovipositor 3.2-3.5 times longer than pronotum. Apical portion of titillators rugate. Body green, from above with brown stripe. Hind femora uniform green or light brown including the area near the base of ventral black spines.

MEASUREMENTS. Length of body male 28.0-30.2, female 32.1-37.0; pronotum male 7.9-8.2, female 8.0-9.1; tegmen male 37.5-38.5, female 36.0-43.0, hind femur male 24.0-25.1, female 24.5-29.2; ovipositor 26.0-31.3 mm.



Figs. 14-22. *Tettigonia*. - 14) *T. orientalis ibuki*, supra-anal plate of male in dorsal view (after Furukawa, 1938); 15) *T. orientalis orientalis*, apex of abdomen of male in dorsal view; 16) do. *T. chinensis*; 17) *T. caudata caudata*, left titillator in dorsal view; 18) do. *T. orientalis orientalis*; 19) *T. viridissima*, titillators in dorsal view; 20) do. *T. dolichoptera maritima* ssp. n.; 21) *T. caudata caudata*, apex of hind femur in lateral view; 22) do. *T. dolichoptera maritima* ssp. n.

DISTRIBUTION. Russia: south part of Far East. Probably will be found in North-East China and North Korea.

***Tettigonia cantans* (Fuessly, 1775)**

Figs. 1, 31

Gryllus cantans Fuessly, 1775 : 23, No 439, Pl. 1, fig. 5a, b (Types - Sweeden, depository unknown, probably lost); Gmelin, 1783, Syst. Nat., 4(1) : 2069.

Locusta cantans: Charpentier, 1825, Hor. Ent. : 109; Burmeister, 1838, Handb. Ent. : 714; Fischer-Waldheim, 1846 : 151, Pl. 4, figs. 6, 7; Fieber, 1853, Lotos, 3 : 172; Fischer, 1853, Orth. Europ. : 253, Pl. 14, figs. 6a, b; Brunner-Wattenwyl, 1882, Prodr. Europ. Orth. : 309 (part.); Jacobson, 1905 : 393.

Decticus antans: Fischer-Waldheim, 1846 : pl. 4, figs. 6, 7.

Phasgonura cantans: Kirby, 1906 : 218.

Tettigonia cantans: Bey-Bienko, 1925 : 42; Tarbinsky, 1925 : 178; Bey-Bienko, 1930 : 495; Mori, 1933 : 52 (part.); Chang, 1935 : 60; Furukawa, 1938 : 449; Tarbinsky, 1948 : 91; Bey-Bienko, 1964 : 226; Ivanova, 1967 : 130; Harz, 1969 : 196, 197, figs. 616, 624, 625; Mistshenko, 1972 : 26; Sergeev, 1986 : 178.

Locusta averniensis Audinet-Serville, 1839, Ins.Orth : 530.

MATERIAL. More than 100 specimens from all area are studied.

REDESCRIPTION. Fastigium of vertex 1.05-1.1 times narrower than first antennal segment. Tegmen extending the apex of hind femora, 3.5-4.4 times longer than pronotum, almost parallelsided; length of RS 1.1-1.2 times more than length of R (from base of R to origin of RS); CuP of left tegmen of male with 54-58 stridulatory teeth; speculum subsquare; length of speculum 2.5-3.0 mm. Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with acute or sometimes dentated apex. Subgenital plate of male with broadly rounded emargination; lateral carinae of subgenital plate of female complete. Ovipositor 3.2-3.6 times longer than pronotum. Apical portion of titillators smooth. Body green, from above with brown stripe. Hind femora uniform green including the area near the base of ventral black spines.

MEASUREMENTS. Length of body male 21.5-30.8, female 24.0-33.0; pronotum male 6.6-7.8, female 6.2-8.1; tegmen male 23.5-28.9,

female 24.0-29.0, hind femur male 19.5-28.7, female 20.0-25.1; ovipositor 20.5-25.5 mm.

DISTRIBUTION. Europe, Kazakhstan, Siberia (from Ural and Altai Mts. to Baikal Lake). All reference from Russian Far East and North-East China belongs to *T. ussuriana*.

***Tettigonia orientalis orientalis* Uvarov, 1923**

Figs. 3, 15, 18, 30

Tettigonia orientalis Uvarov, 1923 : 494. (Holotype - male, Japan, in BMNH, London); Bey-Bienko, 1929 : 545; Furukawa, 1930 : 104; Shiraki, 1932, Iconogr. Insect. Japon.: 2098; Ebner, 1946 : 24; Shiraki, 1950, Iconogr. Insect. Japon. : 39.

Tettigonia orientalis orientalis: Furukawa, 1938 : 447, figs. 1a-c.

Tettigonia viridissima (nec Linnaeus): Bey-Bienko, 1929 : 545; Furukawa, 1930 : 104, 105 (part.).

Locusta japonica Matsumura, 1904, Thous. Ins. Jap., 1 : 125, Pl. 5, fig. 2 (nomen preoccupied, nec Thunberg, 1815).

Phasgonura japonica: Furukawa, 1929, Kontyu, 3(4) : 175.

Tettigonia orientalis yama Furukawa, 1938 : 447, figs. 1d-e. (Syntypes - males and females, Japan: Nagano, Aomori; in collection of Furukawa; lost), **syn. n.**; Yamasaki, 1967 : 47, figs. 29, 30.

MATERIAL. 21 specimens are studied.

REDESCRIPTION. Fastigium of vertex 1.4-1.6 times narrower than first antennal segment. Tegmen surpassing beyond of hind femur on 7-8 mm, 3.3-4.0 times longer than pronotum, at basal 1/3 part more wider than in apical 1/3; length of RS 1.3-1.5 times more than length of R (from base of R to origin of RS); CuP of left tegmen of male with 98-106 stridulatory teeth; speculum subsquare; length of speculum 2.6-3.0 mm. Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with acute apex. Subgenital plate of male with broadly rounded emargination; lateral carinae of subgenital plate of female complete. Ovipositor 3.2-3.5 times longer than pronotum. Apical portion of titillators rugate. Body green, from above with brown stripe. Hind femora uniform green including the area near the base of ventral black spines.

NOTES. *Tettigonia orientalis yama* is a pure synonym of *T. orientalis orientalis*.

MEASUREMENTS. Length of body male 25.0-33.0, female 24.0-

37.0; pronotum male 7.2-8.0, female 7.5-8.5; tegmen male 31.0-35.0, female 30.0-38.0, hind femur male 21.0-29.0, female 24.0-27.0; ovipositor 27.0-33.0 mm.

DISTRIBUTION. Japan: Honshu.

***Tettigonia orientalis ibuki* Furukawa, 1938**

Fig. 14

Tettigonia orientalis ibuki Furukawa, 1938 : 448, figs. 1f-h. (Holotype - male, Japan: Ibuki near Biva Lake; in collection of Furukawa; lost); Ebner, 1946 : 24.

NOTES. Probably good small and robust species, but the studies of additional specimens must be made before the taxonomic position of *Tettigonia* from Biva Lake in Central Honshu may be clarify.

MEASUREMENTS. Length of body male 23.0, tegmen 27.0, hind femur 22.0 mm.

DISTRIBUTION. Japan: Honshu.

***Tettigonia ussuriana* Uvarov, 1939**

Figs. 2, 4, 7, 12, 28

Tettigonia ussuriana Uvarov, 1939 : 614. (Holotype - male, Primorskii krai, Lianchikhe river near Vladivostok (=Okeanskaya), in Zoological Institute, St. Petersburg, studied); Ebner, 1946 : 24; Storozhenko, 1980 : 14; 1981 : 1723; Sergeev, 1986 : 178; Storozhenko, 1986 : 252.

Tettigonia uvarovi Ebner, 1946 : 26, figs. 6-8.

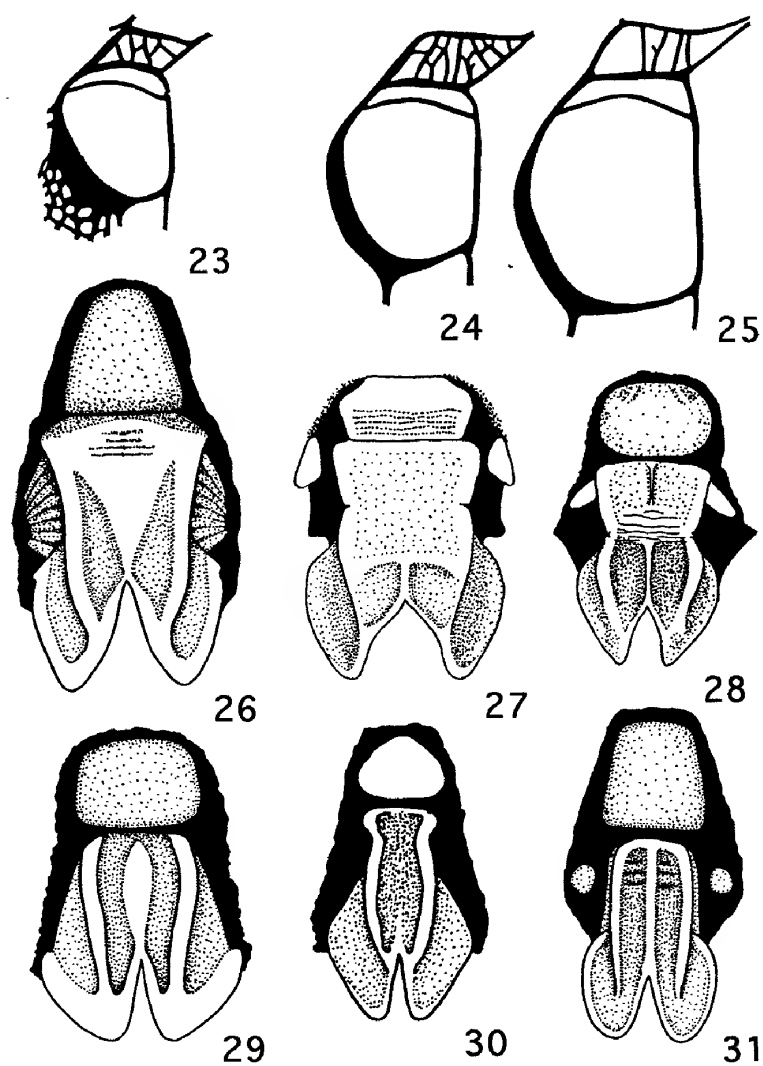
Locusta cantans: Brunner-Wattenwyl, 1882, Prodr. Europ. Orth. : 309 (part.).

Tettigonia cantans (nec. Fuessly): Bey-Bienko, 1930 : 495; Kurentzov, 1938 : 145.

Tettigonia orientalis (nec. Uvarov): Kurentzov, 1938 : 146.

MATERIAL. More than 200 specimens from all area are studied.

REDESCRIPTION. Fastigium of vertex 1.4-1.6 times narrower than first antennal segment. Tegmen extending the apex of hind femora, 3.1-4.2 times longer than pronotum, almost parallelsided; length of RS 1.05-1.3 times more than length of R (from base of R to origin of RS); CuP of left tegmen of male with 79-84 stridulatory teeth; speculum subsquare; length



Figs. 23-31. *Tettigonia*. - 23) *T. caudata caudata*, speculum of male; 24) do. *T. viridissima*; 25) do. *T. chinensis*; 26) *T. viridissima*, subgenital plate of female in ventral view; 27) do. *T. dolichoptera maritima* ssp. n.; 28) do. *T. ussuriana*; 29) do. *T. chinensis*; 30) do. *T. orientalis orientalis*; 31) do. *T. cantans*.

of speculum 3.1-3.2 mm. Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with dentated apex. Subgenital plate of male with broadly rounded emargination; lateral carinae of subgenital plate of female interrupted. Ovipositor 3.1-3.7 times longer than pronotum. Apical portion of titillators rugate. Body green or light brown, from above with dark brown stripe. Hind femora uniform greenish brown including the area near the base of ventral black spines.

MEASUREMENTS. Length of body male 29.0-35.0, female 26.2-34.2; pronotum male 7.0-8.1, female 7.5-8.0; tegmen male 23.5-30.0, female 23.2-27.7, hind femur male 21.0-23.0, female 21.5-25.0; ovipositor 23.0-28.0 mm.

NOTES. *T. uvarovi* is a pure synonym of *T. ussuriana* (Storozhenko, 1981). All records of *T. cantans* and *T. orientalis* from Russian Far East and North-East China belongs to *T. ussuriana*.

DISTRIBUTION. Russia: Primorskii krai and south of Khabarovskii krai. North-East China. Probably also may be found in North Korea.

***Tettigonia caudata caudata* (Charpentier, 1845)**

Figs. 10, 17, 21, 23

Locusta caudata Charpentier, 1845 : pl. 33 (Types - Hungary; depository unknown, probably lost); Fieber, Lotos, 3 : 171; Fischer, 1853, Orth. Europ. : 252, Pl. 14, fig. 7; Fieber, 1854, Syn. Europ. Orth. : 47; Brunner-Wattenwyl, 1882, Prodr. Europ. Orth. : 308, Pl. 8, fig. 72; Jacobson, 1905 : 340, 393; Uvarov, 1910 : 381; Uvarov, 1912, Russk. Entomol. Obozr., 12 : 213.

Pasgonura caudata: Kirby, 1906 : 218.

Tettigonia caudata: Tarbinsky, 1925 : 178; Bey-Bienko, 1925 : 42; Uvarov, 1933, Ark. Zool., 26(1) : 4; Chang, 1935 : 61; Tarbinsky, 1940 : 13, 77; Tarbinsky, 1948 : 91; Bey-Bienko, 1964 : 226; Ivanova, 1967 : 130; Harz, 1969 : 196, 197, figs. 614, 615, 621-623; Mistshenko, 1972 : 26; Pravdin, 1978 : 194; Sergeev, 1986 : 178.

Tettigonia caudata caudata: Ozerskij, 1989 : 119.

Conocephalus kolenatii Fischer-Waldheim, 1846 : 145, Pl. 29, figs. 1, 2.

Locusta longicauda Eversmann, 1848, Addim. Orth. Rossica, Moscou : 8, Pl. A, figs. 2, 2a, b.

Locusta prasina Fieber, 1852, Kelch. Grundl. Orth. : 3.

MATERIAL. More than 70 specimens from all area are studied.

REDESCRIPTION. Fastigium of vertex 1.2-1.4 times narrower than first antennal segment. Tegmen surpassing far beyond of hind femur, 4.6-5.9 times longer than pronotum, almost parallelsided; length of RS 1.6-2.3 times more than length of R (from base of R to origin of RS); CuP of left tegmen of male with 53-65 stridulatory teeth; speculum triangulate; length of speculum 2.0-2.1 mm. Lobes of supra-anal plate of male with acute apex. Inner tooth of male cerci with acute apex. Subgenital plate of male with triangulate emargination; lateral carinae of subgenital plate of female complete. Ovipositor 3.9-4.3 times longer than pronotum. Apical portion of titillators smooth. Body green, sometimes from above with indistinct brownish stripe. Hind femora with black spines ventrally, each of them arising from a black spot.

MEASUREMENTS. Length of body male 25.0-31.5, female 27.0-35.0; pronotum male 7.0-7.9, female 7.9-8.9; tegmen male 32.5-42.5, female 37.0-49.0, hind femur male 24.0-27.5, female 26.0-32.5; ovipositor 31.0-37.3 mm.

DISTRIBUTION. Europe, Minor Asia, Caucasus, Afghanistan, Central Asia, Kazakhstan, North-West China (Tian-Shan), West Mongolia, South Siberia (from Ural and Altai Mts. to east coast of Baikal Lake).

***Tettigonia caudata mistshenkoi* Ozerskij, 1989**

Tettigonia caudata mistshenkoi Ozerskij, 1989 : 117, figs. 1-3 (Holotype - male, Kirghizia: 14 km east Naryn; in Zoological Institute, St. Petersburg; studied).

MATERIAL. Two specimens are studied.

REDESCRIPTION. Closely related to nominative subspecies, but differs by characters mentioned in key and by relatively shorter tegmen.

MEASUREMENTS. Length of body male 25.0-28.0, female 33.0-35.0; pronotum male 6.8-7.4, female 7.8-8.1; tegmen male 34.0-36.0, female 35.0-38.0, hind femur male 24.2-24.5, female 26.2-27.8; ovipositor 28.7-32.5 mm.

DISTRIBUTION. Kirghizia: Inner Tian-Shan.

ACKNOWLEDGEMENTS

I would like to express my thanks to Dr. A.V. Gorochov and L.I.

Podgornaya, Zoological Institute of Russian Academy of Sciences, St. Petersburg, Dr. A.Ozerov, Zoological Museum of Moscow University, Dr. D.Otte, Academy of Natural Sciences of Philadelphia, Dr. Y.Miyatake, Osaka Museum of Natural History, Dr. M.Tomokuni, National Science Museum, Tokyo for their help during my study of collections.

REFERENCES

- Bey-Bienko, G.Ja. 1925. [Data on the fauna of Orthoptera of Altai Mts. and adjacent countries]. - Trudy Sibirskoi selskokhoz. Akademii 5 : 37-56 (In Russian).
- Bey-Bienko, G.Ja. 1929. On some Orthoptera from South Japan. - Ann. Mag. Nat. Hist., 10(4): 542-555.
- Bey-Bienko, G.Ja. 1930. Further studies on the Dermaptera and Orthoptera of Manchuria. - Ann. Mag. Nat. Hist. 10(5): 493-500.
- Bey-Bienko, G.Ja. 1964. [Order Orthoptera]. In: Opredelitel nasekomykh evropeiskoi chasti SSSR, 1. Nauka Publ., Moscow-Leningrad: 205-284 (In Russian).
- Chang, K.S.F. 1935. Index of Chinese Tettigoniidae. - Notes d'Entomologie Chinoise 2(3): 25-77.
- Charpentier, T. 1845. Orthoptera descripta et depicta. Lipsiae: 120 pp.
- Ebner, R. 1946. Einige seltenere palaarktische Tettigoniidae und Gryllidae (Orthoptera). - Eos 23(1-2): 17-30.
- Fischer-Waldheim, G. 1846. Entomographia Imperii Rossici. IY. Orthoptera Imperii Rossici. Mosquae : 446 pp.
- Fuessly, J.C. 1775. Verzeichniss der schweizerischen Insecten. Zurich: 74 pp.
- Furukawa, H. 1930. Miscellaneous on Japanese Orthoptera [I]. - Kontyu 4: 99-111 (In Japanese).
- Furukawa, H. 1938. An attempt to subdivide Tettigonia orientalis Uvarov (Orthoptera). - Zool. Magazine 50(10): 446-449.
- Harz, K. 1969. Die Orthopteren Europas. Bd I. W.Junk Publ. The Hague. 11: 749 pp.
- Ivanova, I.V. 1967. [Peculiarities of the fauna of Orthoptera of the Southern Krasnoyarsk Territory]. - Entomol. Obozr. 46(1): 127-138 (In Russian).
- Jacobson, G.G. 1905. [Orthoptera]. In: Pryamokrylye i lozhnoscetchatokrylye Rossiiskoi Imperii i sopredelnykh stran. Devrien Publ.,

- St.Petersburg: 6-466 (In Russian).
- Kirby, W.F. 1906. A synonymic catalogue of the Orthoptera. II. Orthoptera Saltatoria, part 1. London: 562 pp.
- Kurentzov, A.I. 1938. [To the fauna of Orthoptera of the Suputinskii Reservation]. - Vestnik Dalnevostochnogo Filiala AN SSSR 3 (4): 145-146 (In Russian).
- Laech, W.E. 1815. Artikel Entomology. - Brewster Edinb. Encycl. 9(1): 57-172.
- Linnaeus, C. 1758. Systema Naturae per regna tria naturae secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. (Ed. 10). Holmiae, L. Salvius, 1: 823 pp.
- Marshall, J.A. 1983. The orthopteroid insects described by Linnaeus, with notes on the Linnaean collection. - Zoological Journal of the Linnean Society 78: 375-396.
- Matsumura, S. & Shiraki, T. 1908. Locustiden Japans. - Journ. College Agric. Tohoku, Imp. Univ. Sapporo, Japan. 3(1): 1-80.
- Mistshenko, L.L. 1972. [Orthoptera (Saltatoria)]. - In: Nasekomye i kleshchi vrediteli selskokhozyaistvennykh kultur, 1. Nauka Publ., Leningrad: 16-115 (In Russian).
- Mori, T. 1933. The Korean Tettigoniidae. - J. Chosen Nat. Hist. Soc., 16: 50-56.
- Ozerskij, P.V. 1989. [New subspecies of the Tettigonia caudata (Charp.), (Orthoptera: Tettigoniidae) from Inner Tian-Shan (Kirghizian SSR)]. - Vestnik Leningradskogo Univ., 17(3): 117-119 (In Russian).
- Rentz, D.C. & Miller, G.R. 1971. Ecological and faunistic notes on a collection of Orthoptera from South Korea. - Ent. News 82 : 253-273.
- Roberts, H.R. 1941. Nomenclature in the Orthoptera concerning genotype designations. - Trans. Amer. ent. Soc. 67: 1-34.
- Sergeev, M.G. 1986. [Peculiarities of the distribution of the Orthoptera of North Asia]. Nauka Publ., Novosibirsk: 237 pp. (In Russian).
- Storozhenko, S.Yu. 1980. [Review of the fauna of the bush crickets (Orthoptera, Tettigoniodea) of the Soviet Far East]. - In: Taksonomiya nasekomykh Sovetskogo Dalnego Vostoka. Vladivostok: 10-19 (In Russian).
- Storozhenko, S.Yu. 1981. [New data on bush crickets (Orthoptera, Tettigoniidae) of the Soviet Far East]. - Zoologicheskii Zhurnal 60(11): 1722-1724 (In Russian).

- Storozhenko, S.Yu. 1986. [Order Orthoptera]. In: *Opredelitel nasekomykh Dalnego Vostoka SSSR*, 1. Nauka Publ., Leningrad: 241-317 (In Russian).
- Storozhenko, S.Yu. 1992. [Orthopteroidea]. - In: *Nasekomye Khingan-skogo zapovednika*. Vladivostok: 44-52 (In Russian).
- Tarbinsky, S.P. 1925. [Materials concerning the Orthopterous fauna of the province of Altai]. - *Russk. Entomol. Obozr.*, 19: 176-195 (In Russian).
- Tarbinsky, S.P. 1940. [The saltatorin orthopterous insects of the Azerbaidzhan SSR]. Moscow-Leningrad: 245 pp. (In Russian).
- Tarbinsky, S.P. 1948. [Order Orthoptera (Saltatoria)]. In: *Opredelitel nasekomykh evropeiskoi chasti SSSR*. Selkhozgiz Publ., Moscow-Leningrad: 104-127 (In Russian).
- Tinkham, E.R. 1943. New species and records of Chinese Tettigoniidae from the Heude Museum, Shanghai. - *Notes d'Entomologie Chinoise* 10(2): 33-66.
- Uvarov, B.P. 1910. [Materials on the fauna of Orthoptera of Ural province]. - *Russk. Entomol. Obozr.* 10: 359-390 (In Russian).
- Uvarov, B.P. 1923. Notes on the Orthoptera in the British Museum. 3. Some less known or new genera and species of the subfamilies Tettigoniinae and Decticinae. - *Trans. ent. Soc. London* 3-4: 492-537.
- Uvarov, B.P. 1933. Orthoptera, Tettigoniidae. Schwedisch-chinensche wissenschaftliche Expedition. - *Ark. Zool.* 26A(1): 1-8.
- Uvarov, B.P. 1939. A new Tettigonia from Russian Far East (Orthoptera). - *Ann. Mag. Nat. Hist.* 11(3): 614-616.
- Willemsse, C. 1933. On a small collection of Orthoptera from the Chungking district, S.E.China. - *Natuurh. Maandbld* 22(2) : 15-18.
- Yamasaki, T. 1967. Orthopteroidea of Sugadaira. - *Bull. Sugadaira Biol. Laboratory* 1: 35-61 (In Japanese).

© Far Eastern Entomologist

Editor-in-Chief: S.Yu.Storozhenko

Editorial Board: A.S.Lelej

N.V.Kurzenko

Yu.A.Tshistjakov

Address: Institute of Biology and Pedology, Far East Branch of Russian Academy of Sciences, 690022, Vladivostok-22, Russia.

FAX: (4232) 310 193

E-mail: entomol@stv.iasnet.com